V.—*On some Antiquities of Stone and Bronze from Portugal.*

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I HAVE been requested to make a few remarks on the stone and bronze objects from Portugal, the casts of which have been sent to Sir Charles Lyell, in company with those of the human bones of which an account has been given you by Mr. Busk; and as it may be of interest to compare these implements and ornaments with those of other countries, I have great pleasure in complying with the request, although since writing this paper I find that similar casts were exhibited last year at the Prehistoric Congress at Paris, and were then described and commented upon by M. de Mortillet, whose remarks, however, I have not yet seen.

As there is but a single metallic instrument represented in this collection, I shall proceed to describe it first. It is a socketed celt of bronze, six inches and a half long, two inches and a quarter wide at the cutting edge, and, with the mouth of the socket nearly one inch and a half square. There is, as usual, a projecting lip round the edge of the socket, below which is a second parallel rib; it is otherwise unornamented. In general contour it much resembles the square socketed celts so commonly found in France, and occasionally occurring in this country, of which I exhibit specimens from Alfriston, Sussex; and from the Côtes du Nord, France. There is, however, this remarkable peculiarity, that instead of having only one loop at the side, it has two, exactly opposite to each other, on the two sides of the instrument. Such a form is not given, as occurring in France, in the "Projet de Classification des haches en bronze", in the *Revue Archéologique* for 1866; neither is it given by Lindenschmidt, Worsaae, or Wilde. In a celt-mould, formed of stone, and found in Anglesey, engraved in the *Archæological Journal*, vol. iii, p. 257, there is, however, a loop on either side; and the same is the case with another mould found at Chidbury Hill, near Everly, Wilts, engraved in the *Barrow-diggers*, pl. v, p. 78, and which is in the possession of the Rev. E. Duke, of Lake, near Salisbury. In the British Museum there is also a bronze socketed celt with a loop at each side, which was found in a Tartar hut at the Salt Lakes, fifteen miles north-west of Kertch, near the Sea of Azof; it is engraved in the *Arch. Journ.*, vol. xiv, p. 91.

Celts of the palstave form, with a loop on either side, are likewise of extremely rare occurrence. A specimen found in Ireland is engraved in the *Arch. Journ.*, vol. ix, p. 194, and in Wilde's *Catalogue*, p. 382. The form would appear to be more common in Spain, as one in the British Museum is said to have been one of eighteen or twenty discovered in ancient workings for coal, "supposed to have been known to the Romans", in Andalusia. When found, one of them is said to have been attached to a wooden handle by means of thongs interlaced, and held by notches in the wood. Two long narrow palstaves of this class, from Spain,* were to be seen in the late Paris Exhibition, but none from Portugal. The original of the cast now before us was found at Alemquer, and is in the collection of the Society of Portuguese Architects. The existence of the two loops would make it appear that the instrument was mounted as an adze rather than as an axe.

The remaining casts are all taken from originals in stone. Among them are four, the place of finding of which is unknown, but which are preserved in the public library at Evora. Three of these are celts, or hatchets, and one a gouge. Two of the celts are very large and heavy, eleven inches and a half and ten inches and a half in length, of a broad oval section, the diameters being three inches and a quarter and two inches and a quarter in the larger, and three inches and two inches and a half in the smaller specimen. Both are obtusely pointed at the butt end, and also taper towards the rounded cutting edge, which, in the longer hatchet, is very narrow and sharply curved. The sides of this instrument are also slightly unsymmetrical. I am not aware of the nature of the stone from which they are made, but it is probably one of the metamorphic rocks. These large club-shaped celts are of very rare occurrence. The nearest approach to the form that I possess, is a French specimen in flint, from Chateaudun, Eure et Loire; but this is slightly flattened at the sides, instead of presenting a regular oval section. The third of these instruments is of a totally different form, six inches and a half long, rather more than one inch and a half wide, and three-quarters of an inch thick. It is unsymmetrical in form, one side being straight and flat, and the other curved and rounded. It is brought to a sharp rounded edge at each end, but is narrower at one end than at the other. The material is fibrolite; and the flat side appears to have been produced by sawing, so that probably a flat oval pebble was sawn in two longitudinally, so as to produce two of these instruments. Such marks of sawing are by

* Mortillet, *Matériaux*, vol. iii, p. 288.

no means uncommon on the fibrolite hatchets from Auvergne and central France, and on those of nephrite from the Swiss lakes, and of jade, from New Zealand. In the collection of M. Aymard, at Le Puy, is a fibrolite hatchet, of the same form as this, but shorter and broader. By some of the Swiss antiquaries it has been supposed that the sawing was effected by means of flint flakes. I have, however, never seen any flakes with the surface ground away in such a manner as would have been the case had they been used for this purpose; and am by no means sure but that hard wood or bone, in which sand or emery would become imbedded, might not be a more efficient agent. The method employed by the more modern stone-workers of New Zealand would throw light on this subject. It need hardly be said that these hatchets, with a cutting edge at each end, are of rare occurrence, though they occur occasionally in the British Isles.

The Portuguese gouge is eight inches long, of an oval but almost circular section, the two diameters being, at the largest part, two inches and one-eighth, and one inch and seven-eighths. Like the large celts, it tapers towards the butt end, but it has a decidedly gouge-shaped edge, about two inches in width. The hollowed part extends a comparatively short distance along the face, as is the case with some of the Danish gouges of flint, which are, however, much thinner, and come to a blunted edge at the sides, instead of being oval in section. I have a cast of a smaller but similar implement of chlorite, found near Djelfa, Algiers. It is, however, broken at the edge.

The next series of objects which I have to describe are seven hatchets, reported to have been found in a dolmen at Alcogulo. The material from which they are formed is an amphibolic green schist; but the exact circumstances of the discovery are not described. The most characteristic of these implements is a short thick hatchet, of nearly square section, four inches and three-quarters in length, two inches wide, and two inches thick. The two sides are flat, and the two faces ground away symmetrically, from about the middle of the hatchet, so that the two convex surfaces meet, and produce a curved cutting edge. The butt end is rounded, and appears to have been artificially roughened, so as to give the socket, or handle, in which it was inserted, a better grip, in the same manner as is so frequently seen on the hatchets from the Swiss lake dwellings. Another hatchet, about six inches long, one inch and three-quarters wide, and two inches thick, is of much the same general form, but not so neatly finished. A third, six inches long, one inch and five-eighths wide, and one inch and a half thick, is flat on one face, except near the edge,

from the natural cleavage of the stone, and strongly curved on the other, the curved face being polished at the butt end as well as at the edge. This implement bears some resemblance to the fourth, which appears to be an adze rather than a hatchet. It is six inches long, one inch and a half wide at the cutting end, and pointed at the other, the sides being flat, and converging towards the pointed end. The blade is three-quarters of an inch thick, and slightly curved longitudinally; the curvature of both faces being the result of the cleavage of the stone, as may be seen from the concave face, which is left unground, except at the edge and point. The three other hatchets are flat, and comparatively thin, from four inches and a quarter to five inches in length, and from one inch and three-quarters to two inches wide at the cutting edge, and from five-eighths to seven-eighths of an inch thick. The sides of all are rounded, and in one instance curved, so that the hatchet comes to a point at the butt end. The sides of the other two are nearly straight, but converge to the butt end, which is rounded. The cutting edges of these two are curved, and central of the blade; that of the third is nearly straight, slightly oblique, and more like the edge of a chisel than of an axe. As far as form is concerned, there is little to distinguish these three from the stone hatchets of other European countries made from schistose rocks. The thick short form first described seems, however, almost peculiar to Portugal and Spain, where, amongst other places, it has occurred in the Gibraltar caves. In general design, some of the Danish hatchets of flint much resemble the Portuguese form; but these latter are, if I may use the expression, much more dumpy. The form, however, is no doubt, to a very great degree, dependent upon and modified by the material used, as some of the specimens from the Swiss Lakes, made from the morphitic rocks, are almost as thick in proportion to their length as these from Portugal.

There is another hatchet with an oblique cutting edge, found near a dolmen at Castello de Vide, Alentejo. It is four inches and a half long, two inches and a half wide, and one inch and a quarter thick, the sides converging, straight, and nearly flat, but rounded at the angles. The type is common to most western countries.

Another implement, also from a dolmen at Alcogulo, is a sort of muller, probably used for crushing grain. It seems to have been formed of a part of a broken celt, of irregularly oval section, two inches and a quarter and two inches and a half in diameter, and three inches and a half long. Each end is worn away to a slightly irregular convex face, apparently by a rolling action of the hand pressing the stone on a nearly plane

surface. Such rubbing-stones, or mullers, are of common occurrence, in all parts of the world and of all ages. I happen to have one from Thorslunde, in Denmark, which, from its extreme similarity to this from Portugal, I have brought here; but closely analogous implements might be produced from Yorkshire and other parts of England.

I now come to the objects in stone discovered in the cavern called Casa da Moura, in which the human remains, described by Mr. Busk, were found. The deposits in this cave were of two ages, both containing remains of man and his works, but the lower apparently of far higher antiquity than the upper. Of the objects discovered in the lower deposit, I have not seen any casts; but the most characteristic of them are figured in M. Delgado's description of the cave. They consist of several flakes of flint, and a fragment of a sort of awl, or possibly lancehead, of bone, some quartz pebbles, possibly used as hammer-stones, and a small slab of fine sandstone.

In the upper deposit were found, mixed with human remains, hatchets of polished stone, of the type called Celtic; knives, arrowheads, and other instruments of flint, bone, and stag's-horn; many fragments of rude pottery, black, but with white grains of sand or calcareous spar; together with bones and teeth of animals, fragments of stalactite, quartz, and other pebbles; flint and limestone flakes, small fragments of stone hatchets, and flat pieces of schist with designs upon them, which may have served as amulets. Besides all this, there were fragments of charcoal, numerous shells of *Helix nemoralis* and *H. aspersa*, and some valves of *Pectunculus*, much worn, some of which were pierced near the summit for suspension. A letter of M. Delgado's makes mention also of a lancehead of bronze.

The only objects of which there are casts are a sort of muller or pestle, about six inches long, subquadrate in section, the sides tapering from about one inch and three-quarters to one inch and a half; and an oval pebble, with a groove on one side, labelled "Hammer, similar to those of America." The pestle is probably formed from a celt which had lost its edge, and was then used for pounding. The pebble may or may not have been intended for a hammer; but the groove upon it occurs only on one face, and if the stone is of the proper texture, may have been used for grinding or polishing cylindrical instruments of bone, like the grooved stones found in some of our Wiltshire barrows; as for instance, that of Upton Lovell.* There are traces of a small notch, about half an inch on either side

* Hoare's *South Wilts*, pl. vi, *Archæologia*, vol. xv, p. 125.

of the main groove, and parallel with it. There is also an oblique notch at one end of the stone, which seems hardly in accordance with the view of its being a hammer; but without farther details, or a sight of the original, it is impossible to speak with confidence.

None of the flat amulets mentioned by M. Delgado, as having been found in the Casa da Moura, are represented by casts, but no doubt they were similar to others of which casts are here. Two of these are labelled as having been found with interments at Vianna, Alemtejo, and the third in a sepulchral cave at Monte Real, near Leizia. They are all of schist, not more than half-an-inch thick, ground smooth on both faces and on the edges, with an ornamental pattern on one face only, and with a single hole at one end for suspension. The first is five inches long, three inches and a quarter wide in the middle, the sides curved, the bottom ground to a bevelled edge towards the plain face. The ornamental pattern is scratched upon the stone, and consists of six rows of nearly equilateral triangles, cross-hatched, and with their apices upwards when the stone was suspended. In the upper rows, some of the triangles are omitted so as to leave a plain triangular space, with its apex downwards, and the hole for suspension in the centre of the base. The lines, between which the triangles are described, are closer together towards the upper part of the stone, so that the triangles are smaller, and the bases of one row do not correspond with the spaces between the points of the triangles of the row below; but in some places the triangles alternate with sufficient regularity. The bottom row of triangles seems to have been partly ground away in forming the bevelled edge before mentioned: so that it would seem that this specimen, at all events, was used for some other purpose than as a mere ornament or amulet.

The next is of a different pattern. It is six inches and three-quarters long, four inches and a quarter wide at bottom, and three inches at top, the sides straight, the top and bottom slightly curved. The hole for supension is, like that in the first-described plaque, in the base of an unornamented triangular compartment, with the apex downwards.

Parallel with the sides of the triangle are a series of lines about a quarter of an inch apart, the spaces between which are alternately left plain, and cross-hatched; so that, to speak heraldically, there are four bendlets dexter and sinister on each side of the central pile. At the base, these are bounded by the upper of a series of nine horizontal lines. The space between the two topmost of them is divided, by zigzag lines, into triangles, those with the base downwards being cross-

hatched. The rest of the surface is divided by a series of nearly vertical lines crossing the horizontal into oblong compartments, alternately cross-hatched and plain, so as to produce a chequered pattern.

The pattern on the third of these pendents is again of a different character, but much more indistinct. The stone is five inches and a half long, three inches and a quarter wide at bottom, and two inches and three quarters at top, both sides and ends nearly straight. The hole is again placed in a plain, triangular space, a portion of the apex of which is cut off by a horizontal line. In the two spaces beyond the sides of the triangle are parallel lines, inclined outwards in either case. The space below the horizontal line is divided by two vertical lines into three compartments, in each of which is a series of parallel chevron-shaped lines, the point downwards forming what is known as a herringbone pattern, such as is often seen in Norman masonry. This specimen was found in a sepulchral cave at Monte Real, near Leizia.* I am not aware of similarly ornamented stone pendents having been found in other countries than in Portugal, and, as is the case with so many other antiquities in stone, it is difficult to say for what exact purpose they were intended. It would appear however, from the decorations being only on one face and from their being adapted for suspension, that they were ornaments or amulets intended to be worn like *bullæ* on the breast, though the sharpened edge of the specimen first described seems to imply that they were also occasionally made to subserve some useful purpose.

The character of the ornamentation is of that simple kind which we find to prevail among savage tribes in various parts of the globe, being defined by straight and not by curved lines. It may be compared with that on a hoe made of a stag's antler, engraved in *Nilsson's Stone Age*, pl. xv, No. 257, but it is perhaps more nearly allied to the ornamentation which occasionally is found on the faces of bronze celts. That these pendents, however, can hardly be referred to the bronze age would seem to be proved by the fact that two of them of micaceous slate, and closely resembling the first I have here described, were found associated with three stone celts, formed of schist, one of them

* I ought, perhaps, to except an object discovered by Colonel Dundas in excavating an underground chamber at the Tappoch, Torwood, Stirlingshire, in company with querns, stone-balls, oval stones with cup-shaped depressions on one face, whetstones, spindle-whorls, an iron axe-head, etc. It is thus described in the *Proceedings of the Society of Antiquaries of Scotland*, vol. vi, p. 112:—"Flat, pear-shaped piece of shale, having a hole at the narrow end; greatest length two inches and a half, and breadth two inches. One side is covered with scratches of a Vandyked pattern."

of the adze form, and the other two, square and oval in section, between Beja and Vendas Novas, also in the province of Alemtejo, in Portugal. They are now preserved in the British Museum. It is of course impossible with such limited premises to speculate on the character and affinities of the race by whom these stone implements were used, but it is at all events worth while to call attention to the peculiarities which they seem to present, on which perhaps some future observers may be able to throw more light.